

NOTES ON THE GENUS *CLERODENDRUM* (VERBENACEAE). XXXIII

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CLERODENDRUM Burm.

Additional & emended bibliography: H.B.K., Nov. Gen. Sp. Pl., ed. folio, 2: [198] (1817) and ed. quart., 2: [244]--245. 1818; Hochst., Flora [Bot. Zeit. Regensb.] 25: 225--228. 1842; Manetti, Cat. Pl. Hort. Modic. Suppl. 2: 9. 1842; F. Krause, Flora [Bot. Zeit. Regensb.] 28: 68. 1845; Visiani, Sem. Hort. Patav. 2: 20, pl. 4. 1848; Visiani, Revis. Pl. Min. Cognit. Hort. Patav. 1855; Schlecht., Bot. Zeit. 14: 477. 1856; Visiani, Ill. Piante Orto Padova 3: 20, pl. 3, fig. 2 a--d. 1856; N. J. Andersson, Galap. Veg. 82 & 201. 1859; Teijsm. & Binn., Natuurk. Tijdschr. Ned. Ind. 25 [ser. 5, 5]: 409. 1863; Miq., Ann. Mus. Bot. Lugd.-Bat. 3: 251--254, pl. 9. 1867; Hook. f., Curtis Bot. Mag. 96 [ser. 3, 26]: pl. 5838. 1870; Edgeworth, Pollen, ed. 1, 26, 76, & 94, pl. 1, 2, 6, 8, 12, 15, 18, & 20, fig. 100--103 (1877) and ed. 2, 26, 76, & 94, pl. 1, 2, 6, 8, 12, 15, 18, & 20. 1879; Balf. f., Trans. Roy. Soc. Edinb. 31: [Bot. Socotra] 235--237 & 417, pl. 80. 1880; Rose, Contrib. U. S. Nat. Herb. 1: 136. 1892; Robinson & Greenm., Amer. Journ. Sci. 150 [ser. 3, 50]: 147. 1895; Barnhart, Bull. Torrey Bot. Club 29: 590. 1902; B. L. Robinson, Proc. Amer. Acad. Sci. 38: 194--195. 1902; E. D. Merr., Govt. Lab. Publ. Philip. 35: 62--64. 1906; DeWild., Ann. Mus. Congo Bot., ser. 5, 3: 256. 1909; C. B. Robinson, Philip. Journ. Sci. Bot. 6: 220. 1911; Backer, Tropische Natuur 5: 72 & 87--94. 1916; E. D. Merr., Philip. Journ. Sci. Bot. 12: 302, 303, & 383. 1917; Mildbraed, Wiss. Ergebn. Zent. Afr. Exped. 2: 99. 1920; Svenson, Amer. Journ. Bot. 22: 251. 1935; Arthur & Cummins, Philip. Journ. Sci. 61: 479. 1936; Lam & Meeuse in Holthuis & Lam, Blumea 5: 108--109, 121, & 235--236. 1942; Fairchild, Gard. Isls. Great East 179 & 229. 1943; Svenson, Amer. Journ. Bot. 33: 413 & 422. 1946; Cobin, Amer. Eagle Hort. Rev. 42 (14): 6. 1947; Quisumb., Philip. Dept. Agr. Tech. Bull. 16: 787--791, 1045, & 1208. 1951; Menninger, 1954 Price List [2], [4], & [9]. 1954; Menninger, 1957 Price List [3]. 1957; Estores Anzaldo, Marañon, & Ancheta, Philip. Journ. Sci. 86: 236. 1958; Burt, Notes Bot. Gard. Edinb. 23: 95. 1960; Menninger, Trop. Tree Seeds, imp. 1, [1] (1960) and imp. 2, [1]. 1961; Malaviya, Proc. Indian Acad. Sci. B. 58: 351--[363], fig. 1--10, 25, & 26, pl. 31 (1), & pl. 32 (4). 1963; W. C. Burger, Haile Sallas. Univ. Exp. Sta. Bull. 45: 198, fig. 60 (4). 1965; Boaler, Journ. Ecol. Brit. 54: 474. 1966; Bowman, Galap. 229 & 303. 1966; W. C. Burger, Fam. Flow. Pl. Ethiop. 198, fig. 60 (4). 1967; Schofield, Field Guide Galap. [5], pl. 1 & 14. 1970; Mold. in Wiggins & Porter, Fl. Galap. Isls. 483--486, fig. 127, & pl. 84. 1971; Thornton, Darwin's Isl. 77 & 271. 1971; Usinger, Mem. Pacif. Coast Entomol. Soc. 4: 276--277. 1972; López-Palacios, Revist. Fac. Farm. Univ. Andes 9 (13): 16--17 & 65--66. 1973; Mold., Phytologia 62: 126--153. 1987.

CLERODENDRUM MANETTI Visiani

Additional bibliography: Mold., Phytologia 62: 153. 1987.

Illustrations: Visiani, Sen. Hort. Patav. 2: pl. 4. 1848; Visiani, Ill. Piante Orto Padova 3: pl. 3, fig. 2 a--d. 1856; Visiani, Mem. Istit. Veneto. 6: pl. 3. 1856.

Visiani (1856) describes this plant as follows: "*Clerodendron Manetti* Vis. Sem. h. patav. coll. ann. 1848 et 1849, No. 2, tab. IV. Cl. molliter subcanescens, ramuli quadrangularibus, foliis petiolatis ovali-lanceolatis acuminatis integris, panicula terminali laxa, cymis trifidis, bracteisque obverse lanceolatis acutis deciduis pilosis, pedicellis nutantibus, calyce campanulato hiante esquamato quinquefido, laciniis lanceolatis acutis apice conniventibus, corolla hypocraterimorpha superne extra puberula, tubo cylindrico, calycem quadruplo superante, limbo patente quinquefido. Syn. *Clerodendron splendens* Manetti, cat. pl. h. modic. suppl. II, pag. 9, non Don. Hab...Locum obtinet inter *Euclerodendra paniculata* Schauer in DC. prodr. XI, pag. 666, a quibus omnibus ibidem recensitis differt. A *Cl. splendente* Don, sub quo nomine saepius in hortis colitur, jam prima fronte differt pubescentia, foliorum forma, panicula terminali, colore florum. Spiegazione della tavola del *Clerodendron*. a. Fiore digrandezza naturale. b. Fiore ingrandito. c. Frutto maturo, e vestito del calice. d. Lo stesso tagliato orizzontalmente per vederne i quattro noccinoli." The accompanying plate seems to be excellent. He adds: "Dixi in honorem J. Manetti rei horticolae peritissimi hortiq. Modiciensis directoris eximii, a quo h. Patav. habuit."

Baker (1900), in speaking of *C. buchholzii* Gürke, says that "This may be identical with *C. Manetti*, Vis. Ill. Piante Orto Padova, iii. (1856) 20, t. 3, a garden plant of uncertain origin." If this is true, then Visiani's binomial has priority over that of Gürke, but the conspecificity does not seem at all likely to me.

Lam (1919) credits *C. manetti* to "Vis. Sem. Hort. Patav., no. 2 (1848--49)" and lists it among his "Species with unknown native country".

Thomas (1936) states that he applied to the directors of the herbaria at both Rome and Florence for access to the type specimen, but without success. Bakhuizen (1921) definitely adopts *C. manetti* as the valid name for the *C. buchholzii* of Gürke.

Citations: MOUNTED ILLUSTRATIONS: Visiani, Ill. Piante Ort. Padova. 3: pl. 3, fig. 2 a--d. 1856 (Ld).

CLERODENDRUM MANNII J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 519 [as "*Clerodendron*"]. 1900; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 13, 21, & 25. 1936.

Synonymy: *Clerodendron thyrsoideum* Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 309--310. 1900 [not *C. thyrsoideum* Gürke, 1900]. *Clerodendron mannii* Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 519. 1900. *Clerodendron schultzei* Mildbraed, Wiss. Ergebn. Zent. Afr. Exped. 2: 99, nom. nud. 1920. *Clerodendrum thyrsoideum* Baker apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 70 in syn. 1936. *Clerodendrum schultzei* Mildbraed apud B. Thomas, Engl. Bot. Jahrb.

68: [Gatt. Clerod.] 70 in syn. 1936.

Bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 294 & 309--310. 1900; K. Schum., Justs Bot. Jahresber. 28 (1): 495 & 496. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 44. 1904; Mildbraed, Wiss. Ergebn. Zent. Afr. Exped. 2: 99. 1920; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 13, 21, 26, 40, & 70. 1936; Mold., Alph. List. Inv. Names 20. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 47, 48, & 90. 1942; H. N. & A. L. Mold., Pl. Life 2: 82. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 113, 114, & 182. 1949; Mold., Résumé 139, 140, 269, 270, & 451. 1959; Mold., Résumé Suppl. 9: 3. 1964; Mold., Fifth Summ. 1: 223, 450, 454, & 457 (1971) and 2: 869. 1971; Mold., Phytol. Mem. 2: 214, 216, & 539. 1980.

A climbing shrub; stems to 8 m. long; branchlets glabrous; leaves decussate-opposite, short-petiolate; leafblades oblong, 15--25 cm. long, 7.5--11 cm. wide, apically cuspidate, marginally entire, basally deltoid, moderately firm in texture, green and glabrous on both surfaces; inflorescence composed of lax, few-flowered cymes forming a leafless thyrsoid panicle 20--40 cm. long, the ramifications glabrous; pedicels nearly as long as the calyx; calyx 6--10 mm. long, glabrous, the tube narrowly infundibular, the lobes ovate, much shorter than the tube; corolla hypocrateriform, the tube slender, straight, 2.5 cm. long or longer, glabrous, the lobes subequal, oblong, about 3 mm. long; stamens twice as long as the corolla-lobes.

This species is based on *Mann 1715* from the Sierra del Crystal, Gabon, deposited in the Kew herbarium. Thomas (1936) cites also *Mildbraed 6197* from the Cameroons, type collection of *C. schultzei*.

A key to help distinguish *C. manni* from other species in Section *Siphonocalyx* will be found under *C. mildbraedii* Thomas in the present series of notes, which see.

Nothing is known to me of *C. manni* beyond what is stated in its brief bibliography (above).

CLERODENDRUM MANOMBENSE Mold., Lloydia 13: 210. 1950.

Bibliography: Mold., Lloydia 13: 210. 1950; E. J. Salisb., Ind. Kew. Suppl. 11: 56. 1953; Mold. in Humbert, Fl. Madag. 174: 155, 241--243, & 268, fig. 39 (6 & 7). 1956; Mold., Résumé 155 & 451. 1959; Mold., Fifth Summ. 1: 260 (1971) and 2: 869. 1971; Mold., Phytol. Mem. 2: 249 & 540. 1980; P. Holmgren & al., Ind. Vasc. Pl. Type Microf. 441. 1985; Mold., Phytologia 58: 190. 1985.

Illustrations: Mold. in Humbert, Fl. Madag. 174: 241, fig. 39 (6 & 7). 1956.

A shrub; branchlets and twigs very slender, obtusely tetragonal, rather sparsely strigillose; nodes more or less annulate with a band of dense hairs; principal internodes 1--4 cm. long; leaves decussate-opposite; petioles subfiliform, 1--2 cm. long, canaliculate above, mostly glabrous except for a line of scattered minute hairs in the channel above; leafblades membranous, dull-green on both surfaces, elliptic or elliptic-lanceolate, 4.5--8 cm. long, 2--3.8 cm. wide when fully developed, apically acute or acuminate, marginally entire, basally acute, glabrate on both surfaces; midrib filiform, flat above, subprominent beneath; secondaries filiform, 5--7 per

side, flat or almost so on both surfaces or very slightly subprominulous beneath, arcuate-ascending, obscurely anastomosing in loops near the margins; veinlet reticulation indiscernible or obscure on both surfaces; inflorescence terminal, cymose, many-flowered, sometimes subtended by a pair of axillary cymes; peduncles filiform, flattened, nigrescent, 5--10 mm. long, strigillose; pedicels filiform, 1--3 mm. long, strigillose; bractlets setaceous, about 1 mm. long, strigillose; calyx campanulate, chartaceous, nigrescent in drying, 1.5--2.5 mm. long, 1.5--2 mm. wide, externally glabrous, the rim truncate, very shortly 5-apiculate; corolla infundibular, nigrescent in drying, 7--8 mm. long in all, externally glabrous, the tube narrow-cylindric, the limb about 4 mm. wide; stamens and pistil exerted almost 1 cm. from the corolla-mouth; fruiting-calyx and fruit not known.

This endemic Madagascar species is based on *Humbert 20004* from a tropophilous forest and xerophilous bush on limestone rocks, at 100-350 m. altitude, in the gorge of the Manombe River, in southwestern Madagascar, collected on January 25 or 26, 1947, and deposited in the Paris herbarium. It is known thus far to me only from the original collection.

A key to help distinguish this species from other Madagascar taxa in the genus will be found under *C. baronianum* Oliv. in the present series of notes [58: 184--190].

Citations: MADAGASCAR: *Humbert 20004* (E--photo of type, F--photo of type, Ld--photo of type, N--isotype, N--photo of type, P--type).

CLERODENDRUM MARGARITENSE Mold., Geogr. Distrib. Avicenn. 20 nom. nud. 1939; *Phytologia* 1: 446. 1940.

Bibliography: Knuth, Feddes Repert. Spec. Nov. Beih. 43: [Init. Fl. Venez.] 607. 1927; Mold., Geogr. Distrib. Avicenn. 20. 1939; Mold., *Phytologia* 1: 446. 1940; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 30 & 90. 1942; Mold., Alph. List Cit. 1: 302 & 305. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 55. 1947; Mold., Alph. List. Cit. 2: 418, 437, 469, 499, & 593 (1948), 3: 738 (1949), and 4: 1027, 1030, & 1041. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 58 & 182. 1949; Mold., *Phytologia* 4: 45. 1952; Mold., Résumé 64 & 451. 1959; Mold., Fifth Summ. 1: 113 (1971) and 2: 869. 1971; López-Palacios, Revist. Fac. Farm. Univ. Andes 9 (13): 65--66. 1973; López-Palacios, Fl. Venez. Verb. 264 & 267--268. 1977; López-Palacios, Revist. Fac. Farm. Univ. Andes 20: 20. 1979; Mold., *Phytol. Mem.* 2: 104 & 540. 1980; P. Holmgren & al., Ind. Vasc. Pl. Type Microf. 441. 1985; Mold., *Phytologia* 58: 181. 1985.

A shrub; branchlets and twigs rather slender, obtusely tetragonal, brownish, densely short-pubescent or merely puberulent in age; younger nodes seemingly annulate through the confluence of persistent petiole-base margins, the older ones not annulate; principal internodes 1--21 mm. long, usually extremely abbreviated on young twigs or even subobsolete; leaves ternate or ternate-approximate; petioles very slender, 1--7 mm. long, densely short-pubescent, the base persisting as a stout, corky, non-aculeate, spur-like projection 1--2 mm. tall after the blade is shed, in whose axil may often

be found a sharp or bluntish spine 3--4 mm. long, which is the lowest part of the peduncle left when the upper portion broke off after fruiting; leafblades membranous, dark gray-green above, light- or yellow-green beneath, elliptic, 1--4.5 cm. long, 5--14 mm. wide, apically acute or very shortly subacuminate, marginally entire and often more or less revolute in drying, basally acute or subacuminate, rather densely short-pubescent above, much more densely so beneath with yellowish-brown hairs and densely punctate; midrib very slender, impressed above, prominent beneath; secondaries very slender, 3--7 per side, arcuate-ascending, obscure or indiscernible above, slightly prominent or obscure beneath; vein and veinlet reticulation very delicate, impressed or obscure above, not at all prominent and often even obscure beneath; inflorescence axillary, congested at the tips of the twigs so as to appear terminal, the cymes abbreviated, ternate, solitary, 1.5--3 cm. long, 0.6--2 cm. wide, rather loosely many-flowered, very densely short-pubescent (like the lower leaf-surfaces) throughout; peduncles slender, 6--10 mm. long, pubescent; pedicels slender, 2--4 mm. long, pubescent; bractlets linear-subulate, 2--5 mm. long, densely pubescent; prophylla minute, setaceous; calyx about 3 mm. long and wide, shortly appressed-pubescent; corolla hypocrateriform, the tube 7--10 mm. long, the limb about 7 mm. wide.

This apparently endemic species is based on *J. R. Johnston 82* from along the road from El Valle to Asuncion, Margarita Island, Venezuela, collected in August of 1903 and deposited in the United States National Herbarium in Washington. The species has mostly been confused with the continental *C. molle* H.B.K. It has been collected in flower in July and August. López-Palacios (1977) comments that "Hasta ahora ha sido confundido con el continental *C. molle* H.B.K., al cual se parece muchísimo y del que a simple vista apenas se distingue. La diferencia parece estar en el indumento, que es mucho menos denso en el *C. margaritense*." The leaves are also much smaller and the calyxes smaller, with shorter less caudate lobes.

López-Palacios (1977) cites *Johnston s.n.* [1903] and *Miller & Johnston 8 & 82*. His key to the species of *Clerodendrum* in Venezuela is worth repeating here, in translation and with some modifications:

1. Climbing plants.
 2. Calyx wine-red.....*C. umbellatum* (and its varieties).
 - 2a. Calyx white.....*C. thomsonae*.
- 1a. Erect shrubs or trees.
 3. Corolla doubled.....*C. philippinum* f. *multiplex*.
 - 3a. Corolla simple.
 4. Petioles elongate, 5--40 cm. long; pedicels reddish; leaves always opposite.....*C. speciosissimum*.
 - 4a. Petioles and pedicels not as above; leaves sometimes opposite but more usually ternate.
 5. Petioles basally markedly spinescent.....*C. aculeatum*.
 - 5a. Petioles basally only inconspicuously spinescent.
 6. Leafblades tomentose beneath.....*C. margaritense*.

6a. Leafblades not tomentose beneath.

7. Leaves not more than 2.4 cm. long.....*C. pittieri*.

7a. Leaves more than 2.5 cm. long.....*C. ternifolium*.

Citations: NORTHERN SOUTH AMERICAN ISLANDS: Margarita: J. R.

Johnston 82 (B--isotype, Ca--146712--isotype, Cp--isotype, F--174494--isotype, G--isotype, K--isotype, L--isotype, Ld--photo of type, Mu--3999--isotype, N--isotype, N--photo of type, V--isotype, W--531921--type, W--956183--isotype, X--isotype); *Miller & Johnston* 8 (B, Bm, E--118870, F--126583, G, K, N, N, P, Po--64679, W--417745).

CLERODENDRUM MELANOCRATER Gürke, Engl. Bot. Jahrb. 18: 180 [as "*Clerodendron*"]. 1893; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 41, 72, & 94. 1936.

Synonymy: *Clerodendron melanocrater* Gürke, Engl. Bot. Jahrb. 18: 180. 1893. *Clerodendron sereti* DeWild., Ann. Mus. Cong. Belg., ser: 5, 3: 256. 1909. *Clerodendron sereti* DeWild. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 72 in syn. 1936. *Clerodendron melanophyllum* S. Moore, in herb.

Bibliography: Gürke, Engl. Bot. Jahrb. 18: 180. 1893; Gürke in Engl., Pflanzenw. Ost-Afr. C: 341. 1895; J. G. Baker in Thiselt.-Dyr, Fl. Trop. Afr. 5: 293 & 299. 1900; Gürke, Engl. Bot. Jahrb. 28: 297. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101. 1901; DeWild., Ann. Mus. Cong. Belg. Bot., ser. 5, 3: 256. 1909; DeWild., Etud. Fl. Bas-Moyen-Congo 3: 256 & 468, pl. 43. 1910; DeWild., Bull. Roy. Soc. Bot. Belg. 51 (3) [ser. 2, 1]: 180. 1913; DeWild., Bull. Jard. Bot. Brux. 7: 174. 1920; DeWild., Pl. Bequaert. 2: 268. 1922; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 272 & 274. 1931; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 7, 9, 10, 14, 16, 41, 72, & 94. ;936; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 101. 1941; Mold., Alph. List Inv. Names 20. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 47--49 & 90. 1942; W. Robyns, Fl. Sperm. Parc Nat. Albert 2: 141 & 144. 1947; H. N. & A. L. Mold., Pl. Life 2: 83. 1948; Mold., Alph. List Cit. 3: 828. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 113--116 & 182. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 101. 1959; Mold., Résumé 139--141, 143, 144, 146, 266, 269, & 451. 1959; Dale & Greenway, Kenya Trees 582. 1961; Huber in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 441 & 444. 1963; Mold., Résumé Suppl. 8: 4. 1964; Gillett, Numb. Check-list Trees Kenya 46. 1970; Mold., Fifth Summ. 1: 223, 225, 229, 232, 233, 236, 240, 450, 454, & 463 (1971) and 2: 869. 1971; Lewalle, Bull. Jard. Bot. Nat. Belg. 42 [Trav. Univ. Off. Bujumb. Fac. Sci. C.20]: [230]. 1972; Mold., Phytol. Mem. 2: 214, 215, 219, 222, 223, 225, 230, & 540. 1980; Mold., Phytologia 58: 441 (1985), 59: 335 (1986), and 60: 271. 1986.

A small, thin tree, 3 m. tall, or a small to tall, climbing, sciophilous shrub or shrubby, woody liana, 2--7 m. long, turning black when dry; stems thin; branches tetragonal, alate, divergent, scrambling, the lower ones glabrescent, the upper ones rather densely short-pubescent with appressed twisted hairs; leaves decussate-opposite, turning ink-blue when bruised, nigrescent in drying; petioles 1--4.5 cm. long or longer; leafblades ovate or oblong-ovate to

ovate-elliptic or suborbicular, 5--10 cm. long, 3--9 cm. wide, apically short-acuminate, marginally entire, basally obtuse or subcordate to cordate, glabrous on both surfaces; inflorescence terminal, paniculate, 10--12 cm. long, very regularly branched, densely pubescent throughout with short, appressed, twisted hairs, the cymes corymbose, subsessile, lax, the axis greenish-white; bracts linear or filiform, mostly 3--4 (rarely to 5) mm. long; pedicels elongate, 8--10 mm. long, greenish-white; flowers fragrant; calyx cupuliform, externally puberulent or subglabrous, 2--2.5 mm. long, white when fresh or the tube "darkish-green", uniformly black when dry, the puberulence mostly sparse and appressed, the rim 5-dentate, the teeth deltoid, apically acute, hardly more than 1 mm. long, the sides mostly subequal, pale-, or light-green when fresh; corolla hypocrateriform, brownish-yellow or whitish to white, turning yellowish when old and ink-blue when bruised, nigrescent when dry, the tube 2--2½ times as long as the calyx, 5--6 mm. long, usually less than 1 mm. wide, externally finely puberulent or glabrous and glandulose, the lobes 2--3 mm. long, dorsally finely puberulent; stamens long-exserted; filaments pale-greenish; anthers dark-blue; style long-exserted, pale-greenish; stigma bilobed, greenish.

This very distinctive species is based on *Stuhlmann 2698* from woods at 1300 m. altitude near the Itiri River, Zaire, collected on September 15, 1891, and *Stuhlmann 3322, 3650, 3720, & 3891*, all from Bukoba, in Karagwe, Tanganyika (Tanzania), collected, respectively, in February of 1892, on March 20, 1892, on March 25, 1892, and on April 7, 1892. Of these, Thomas (1936) has designated *Stuhlmann 3322* as the type.

Clerodendron sereti is based on *Seret 996* and is said by DeWildeman (1909) to differ from *C. melanocrater* in having quadrangular subulate branches and larger leaves.

Robyns (1947) describes *C. melanocrater* in Zaire as an "Arbuste lianeux, habitant les formations forestières équatoriales, se reconstruit dans le District Forestière Central, le Moyen-Katanga et dans les montagnes à l'ouest de lac Kivu. C'est un élément guinéen, s'étendant depuis le Cameroun jusque dans l'Uganda à l'Est."

Collectors have found this plant growing in virgin and gallery forests and forest edges, in shade along the sides of streams, and in the secondary tree layer of swamp forests, at altitudes of 470--2700 m., in flower from January to April and July to October. Maas-Geesteranus encountered it "in a very dense tall forest with few clearings and transected by a rectangular system of paths" in Kenya.

The specific epithet, for some reason unclear to me, is sometimes uppercased (e.g., by Hutchinson & Dalziel, 1931, and Baker, 1900).

The corolla is described as "white" on *Bequaert 6565, Dummer 1005 & 5475, Lebrun 3988, and Robyns 1325*, "deep-cream" on *Drummond & Hemsley 4578*, and "green to yellow" on *Lewalle 3250*.

Vernacular names recorded for *Clerodendrum melanocrater* are "korokindi", "mbambake e boliki", "mosale", "nbiremo", and "ngeta".

The Gürke (1893) reference to this species is sometimes inaccurately cited as "1894", the titlepage date of the volume; similarly, the DeWildeman (1913) reference is often cited as "1912", again,

the titlepage date.

Gürke (1900) calls attention to similarities between *C. melanocrater* and *C. bipindense* Gürke and *C. yaundense* Gürke.

Dewildeman (1922) cites *Bequaert 6565* from Zaire; Hutchinson (1931) cites *Mildbraed 10510* from the Cameroons. Thomas (1936) cites *Stuhlmann 3322, 3650, 3720, & 3891* from Tanganyika, *Mildbraed 2247, Seret 996, Stuhlmann 2698*, and *Witte 1538* from Zaire, *Ledermann 1153, Mildbraed 5556, 5789, & 10510*, and *Preuss 406 & 416* from the Cameroons, and *Mildbraed 6835* from Fernando Po.

Huber (1963) cites *Mildbraed 10510* from the Cameroons and *Melville 445* from Fernando Po, listing the species also from Zaire, Uganda, and Tanganyika; Lewalle (1972) cites *Lewalle 3250* from Burundi.

Keys to help distinguish *C. melanocrater* from other African species in the genus will be found under *C. dusenii* Gürke and *C. inaequipetiolatum* Good in the present series of notes [59: 335 and 60: 271].

Citations: CAMEROONS: *Preuss 416* (L). ZAIRE: *Bequaert 6565* (Br); *Brande 226* (Br); *Bredo 580* (Br), *696* (Br), *770* (Br); *Broun s.n.* (Br); *Claessens 600* (Br); *Collector undetermined 154* (Br); *DeGiorgi 1231* (Br); *DeGraer 341* (Br), *365* (Br, Br, Br); *DeWitte 1538* (Br); *Goossens 5018* (Br); *Humbert 7579* (Br); *Lebrun 3988* (Br, Br), *5146* (Br, Br); *Louis 13250* (Br, N), *15723* (B, Br, N, W--2091122); *Putman 99* (Br); *Reygaert 1103* (Br); *Robyns 1325* (Br, Br); *Sapin s.n.* [Dwado 1912] (Br, N); *Seret 996* (Br, Ld--photo, N--photo); *Van den Brande 55* (Br); *Vanderyst 897* (Br), *939* (Br). BURUNDI: *Lewalle 3250* (Ld). UGANDA: *P. Chandler 1210* (Br); *Drummond & Hemsley 4578* (B); *Dummer 1005* (W--634708), *5475* (Af, W--1249834). KENYA: *Maas-Geesteranus 6264* (Ca--92367, Go, S).

CLERODENDRUM MEMBRANIFOLIUM H. J. Lam, Verbenac. Malay. Arch. 318--319 [as "*Clerodendron*"]. 1919; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 66 & 90. 1942.

Synonymy: *Clerodendron membranifolium* H. J. Lam, Verbenac. Malay. Arch. 318. 1919.

Bibliography: H. J. Lam, Verbenac. Malay. Arch 318--319 & 364. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 95, 109, & ix. 1921; A. W. Hill, Ind. Kew. Suppl. 6, imp. 1, 49. 1926; Fedde & Schust., Justs Bot. Jahresber. 47 (2): 245. 1927; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 66 & 90 (1942) and ed. 2, 148 & 182. 1949; A. W. Hill, Ind. Kew. Suppl. 6, imp. 2, 49. 1959; Mold., Résumé 199 & 451. 1959; Mold., Fifth Summ. 1: 332 (1971) and 2: 869. 1971; Mold., Phytol. Mem. 2: 322 & 540. 1980.

Lam's original (1919) description is: "*C. membranifolium* H. J. Lam, prob. nov. spec. -- Frutex?; ramuli graciles, appresse pubescentes; folia opposita, valde membranacea, ovato-rotundata, basi rotundata, vel subrotundata, apice acuminata, margine integra; utrinque nervis puberulis exceptis glabra, subtus glanduloso-punctata; nervis utrinque 6--8; 10½--20 cM. longa, 5--11 cM. lata; petiolo, cum panícula terminale appresse pubescente, 2--12½ cM. longo; calyx pubescens; cetera non videmus."

This species is based on *Forsten s.n.*, no. 908.267--742 in the Leiden herbarium, from Luha, Amboina, in the Molucca Islands. Nothing is known to me of this plant beyond what is stated in its brief bibliography (above).

CLERODENDRUM MICANS Gürke, Engl. Bot. Jahrb. 18: 179--180 [as "*Clerodendron*"]. 1893; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 53 & 90. 1942.

Synonymy: *Clerodendron micans* Gürke, Engl. Bot. Jahrb. 18: 179. 1893.

Bibliography: Gürke, Engl. Bot. Jahrb. 18: 179--180. 1893; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101 (1901), imp. i, 496 (1906), and imp. 2, 101 & 496. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 53 & 90 (1942) and ed. 2, 123 & 182. 1949; Mold. in Humbert, Fl. Madag. 174: 156, 247, 251--252, 266, & 268, fig. 40 (10). 1956; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 101 & 496. 1959; Mold., Résume 155 & 451. 1959; Mold., Fifth Summ. 1: 260 (1971) and 2: 869. 1971; Mold., Phytol. Mem. 2: 249 & 540. 1980; P. Holmgren & al., Ind. Vasc. Pl. Type Microf. 441. 1985; Mold., Phytologia 58: 190. 1985.

Illustrations: Mold. in Humbert, Fl. Madag. 174: 247, fig. 40 (10). 1956.

A shrub or woody vine; branchlets rather stoutish, often armed with woody spines, often rather acutely tetragonal, the edges often somewhat margined, lenticellate, minutely appressed-puberulent, glabrescent in age; twigs slender, acutely or obtusely tetragonal or even subterete, gray, lenticellate, densely appressed-puberulent; nodes not annulate; principal internodes 1--5 cm. long; leaves decussate-opposite or approximate, persistent; petioles slender, 5--19 mm. long, canaliculate above, more or less appressed-puberulent, sometimes borne at the apex of a woody spur-like spine 4--12 mm. long; leafblades membranous, brunnescent in drying, elliptic or elliptic-ovate, 4--8.5 cm. long, 2--5 cm. wide, apically acuminate, marginally entire, basally acute, glabrous and shiny on both surfaces, sometimes punctate beneath; midrib slender, flat above, prominent beneath; secondaries very slender, 5--8 per side, flat above, prominent beneath, ascending, arcuately joined in many loops near the margins beneath; veinlet reticulation abundant, varying from slightly prominulous to indiscernible above, mostly slightly prominulous beneath; inflorescence axillary and terminal, mostly aggregated in large panicles at the tips of the branchlets, the cymes many-flowered, 4 or 5 times dichotomous, individually rather loosely spreading but often aggregated into very dense panicles; peduncles rather stout, rounded, fistulose, 2--5.5 cm. long, minutely puberulent; pedicels under the central flower at each furcation elongated to 10 mm., those under the lateral flowers obsolete or to only 2 mm. long; foliaceous bracts sometimes present in the terminal panicle, leaf-like; bractlets linear, 2--6 mm. long, puberulent; flowers strongly odorous; calyx campanulate, 4--5 mm. long, 2--3 mm. wide, minutely and obscurely puberulent, the rim flaring, 5-lobed, the lobes triangular-ovate, 1--1.4 mm. long, apically acute; corolla

hypocrateriform, white, the tube very slender, about 1.5 cm. long, glabrous, the limb less than 1 cm. wide; stamens exerted about 1 cm. from the corolla-mouth; fruiting-calyx accrescent, incrassate, campanulate, 7--10 mm. long and wide, longitudinally striate-venose, the rim subtruncate and very shortly 5-apiculate; fruit drupaceous, shiny.

This endemic species is based on *Hildebrandt 3676* from the edge of woods at East Imerina, Andrangoloaka, Madagascar, collected in November of 1880 and deposited in the Berlin herbarium, now destroyed.

Collectors have encountered the plant in forests and at their edges, on gneiss, in river gorges, and around villages, at 1600--1700 m. altitude, in flower in August, September, and November. The corollas are described as having been "white" on *Decary 5903* and *Humbert & Perrier 2288* and *Perrier 10195*.

A key to help distinguish this species from other Madagascar taxa in this genus will be found under *C. baronianum* Oliv. in the present series of notes [58: 184--190].

The Gürke reference in the bibliography (above) is sometimes cited as "1894", the volume titlepage date.

Material of *C. micans* has been misidentified and distributed in some herbaria as *C. putre* Schau.

Citations: MADAGASCAR: *Campanon s.n.* (P); *d'Alleizette 300m* (P); *Decary 5903* (P); *Herb. Jard. Bot. Tananarive 1102* (P), 3469 (P, P); *Hildebrandt 3676* (E--photo of isotype, F--photo of isotype, Ld--photo of isotype, K--isotype, Mu--isotype, N--isotype, N--photo of isotype, P--isotype, P--isotype); *Humbert 3577* (P); *Humbert & Perrier 2288* (P, P); *Perrier 10186* (P), 10195 (N, P); *Waterlot 583* (P).

CLERODENDRUM MICRANTHUM Gilli, Ann. Naturhist. Mus. Wien 77: 29--30. 1973.

Bibliography: Gilli, Ann. Naturhist. Mus. Wien 77: 29--30. 1973; Brenan, Ind. Kew. Suppl. 16: 71. 1981.

A shrub; branches obtusely 6-angular; younger branchlets 4-angular, very shortly white-pilose; upper internodes 2--5 cm. long; leaves ternate or on the more slender branchlets decussate-opposite; petioles 2--10 mm. long, densely pubescent; leafblades membranous, broadly lanceolate, mostly 4--7 cm. long and 2--3.5 cm. wide, apically acuminate, marginally crenate with minutely apiculate crenations, basally attenuate, pubescent along the venation above, otherwise glabrous, more densely white-pubescent beneath, the venation prominent; inflorescence terminal, paniculate, 2.5--5 cm. long, 1.5--7 cm. wide, basally foliose, the cymes loosely branched; peduncles 1.5--3 cm. long, velutinous-puberulent; pedicels 1--3 mm. long, velutinous; bracts ovate-lanceolate, 1 mm. long; bractlets subulate, 1 mm. long, velutinous; calyx pale-green, later yellowish-red and dilated, cylindric, 3--4 mm. long, externally densely villous with intermixed glanduliferous hairs, the lobes triangular, erect or curvate, 0.5--1 mm. long, unequal, apically acute; corolla white, zygomorphic, the tube narrowly tubular, 4--6 mm. long, slightly curvate, glabrous, the posterior side split to the middle, the lobes

obovate, 1--2 mm. long, dorsally tomentose; the 2 longer staminal filaments 5--6 mm. long, exserted, connate for 3/4 the length of the corolla-tube, free above, the 2 shorter filaments 4 mm. long, very sparsely pilose or glabrous; style 5 mm. long, exserted; stigma 0.2 mm. long; ovary cylindrical-oblong, 1 mm. long, externally glabrous; immature fruit globose, to 5 mm. long and wide.

This species is based on *Gilli 448* from shrubbery at Lumbila, at 540 m. altitude, on the north shore of Lake Nyasa, Tanzania collected on August 11, 1958, in flower and immature fruit, deposited in the Vienna herbarium. Gilli (1973) comments that "Die Art wurde auch im blütenlosen Zustand am Nordwestufer des Nyassasees bei Mwaya gesehen. Ich reihe die neue Art in die Untergattung *Cyclonema* ein, obwohl sie sich von ihr durch die schmalzylindrische Corollröhre unterscheidet und auch durch die spitzen Kelchzipfel ein seltener Fall in dieser Untergattung ist, da die Corolle zygomorph und die Corollröhre gekrümmt sowie rückwärts ungefähr bis zur Hälfte gespalten ist. Auch die Tatsache, dass der an der Corollröhre angewachsene Teil der Filamente fast kahl ist, ist für die Untergattung ungewöhnlich." He proposes for this species the new Section *Micrantha* whose characterization is "Paniculae terminales, calyx tubulosus dentibus triangularibus acutis, corollae tubus vix 6 mm longus, anguste tubulosus". He comments that "Die neue Sektion unterscheidet sich von der Sect. *Pleurocymosa* durch die lockeren endständigen Rispen, von den anderen Sektionen der Untergattung durch die sitzen Kelchzipfel und die kleinen Blüten."

Nothing is known to me of this species beyond what is stated in its brief bibliography (above).

CLERODENDRUM MICROCALYX Ridl., Journ. Malay. Br. Roy. Asiat. Soc. 1: [Malay. For. Trees] 84 [as "*Clerodendron*"]. 1923; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 63 & 90. 1942.

Synonymy: *Clerodendron microcalyx* Ridl., Journ. Malay. Br. Roy. Asiat. Soc. 1: [Malay. For. Trees] 84. 1923.

Bibliography: Ridl., Journ. Malay. Br. Roy. Asiat. Soc. 1: [Malay. For. Trees] 84. 1923; A. W. Hill, Ind. Kew. Suppl. 7: 51. 1929; Fedde & Schust., Justs Bot. Jahresber. 59 (2): 417. 1939; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 63 & 90 (1942) and ed. 2, 143 & 182. 1949; Mold., Résumé Suppl. 14: 4 & 8. 1966; Mold., Fifth Summ. 1: 322 & 450 (1971) and 2: 869. 1971; Mold., Phytol. Mem. 2: 313 & 540. 1980; P. Holmgren & al., Ind. Vasc. Pl. Type Microf. 441. 1985; Mold., Phytologia 57: 35 (1985) and 58: 460. 1985.

Ridley's original (1923) description of this species is "Tree 15 to 20 feet tall; branches scurfy, velvety, 4-angled. Leaves thin, ovate, subacute, base broad, subtruncate rounded; nerves 6 pairs spreading, scurfy-velvety 6 to 9 in. long, 5 to 8 in. wide; petiole 7 in. long. Corymbs 2 in. wide; peduncle 1.5 to 3 in. long, densely tomentose velvety. Flowers numerous crowded, white sessile. Calyx .1 in. long, tubular-campanulate, velvety with very short acute teeth. Corolla glabrous, tube slender .5 in. long, lobes oblong, blunt, scabrid outside .1 in. long. Stamens filaments glabrous filiform exsert, .2 in. long (twice as long as corolla-lobes). Fruit

pyriform to subglobose, glabrous .25 in. through. Calyx short, saucer-shaped .1 in deep, with 5 minute teeth. Sibolangit, Bukit Semaik. Tree 15 to 20 feet. Fruit green; flower white (Mohamed Nur 7447). Allied to *C. villosum*, Bl., but with very small calyx lobes and bracts." The type locality is in Sumatra.

The two examples of *Nur 7447* seen thus far by me -- in the Britton Herbarium and in the Buitenzorg herbarium -- seem to represent a white-flowered form of *C. colebrokianum* Walp., so it is probable that Ridley's binomial must be reduced to the latter's synonymy or else given form status within that species.

CLERODENDRUM MICROPHYLLUM Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 103--104. 1936.

Bibliography: B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 47, 71, 94, & 103--104. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 46 & 90. 1942; Hill & Salisb., Ind. Kew. Suppl. 10: 55. 1947; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 110 & 182. 1949; Mold., Résumé 135 & 451. 1959; Cuf., Bull. Jard. Bot. Brux. 32: Suppl. 800 & 802. 1962; W. C. Burger, Haile Sallas. Univ. Exp. Sta. Bull. 45: 198, fig. 60 (4). 1965; W. C. Burger, Fam. Flow. Pl. Ethiop. 198, fig. 60 (4). 1967; Mold., Fifth Summ. 1: 213 (1971) and 2: 869. 1971; Mold., Phytol. Mem. 2: 204 & 540. 1980; Mold., Phytologia 57: 34 & 353. 1985.

Illustrations: W. C. Burger, Haile Sallas. Univ. Exp. Sta. Bull. 45: 198, fig. 60 (4). 1965; W. C. Burger, Fam. Flow. Pl. Ethiop. 198, fig. 60 (4). 1967.

A squarrose shrub; branchlets twiggy, cinereous, glabrous; principal internodes 1--2 cm. long; leaves small, ternate, short-petiolate; petioles 1--2 mm. long; leaf-blades oblong-elliptic, 0.8--1.1 cm. long, 3--5 mm. wide, apically rounded or shortly acute, marginally entire, basally attenuate, pubescent on both surfaces; flowers clustered in many-flowered heads, borne on short turions from the stems; peduncles and pedicels very short; bracts filiform, puberulent; calyx cupular-campanulate, about 3 mm. long, puberulent, the limb 5-denticulate, the teeth small, apically acute; corolla hypocrateriform, the tube 1.2 cm. long, slender, externally glandular-pilose, basally slightly dilated, the limb almost bilabiate, 4 lobes subequal, the fifth larger, obovate-oblong, 4--6 mm. long; stamens exerted, inserted at about the middle of the corolla-tube; filaments about 2.5 cm. long; anthers 2 mm. long; style about 2.5 cm. long; stigma bifid; ovary 1 mm. long, glabrous, glanduliferous, black; mature fruit not known.

This little-known species is based on *Riva 1067* [*Ruspoli 964*] from dry bushy places at Daodd, in what used to be Italian Somaliland [now Somalia], collected on January 20, 1891, and deposited in the Berlin herbarium, now destroyed.

Cufodontis (1962) cites the type collection as "*Ruspoli & Riva 1067, vel 964* [357]" and asserts that the type locality is probably in Ethiopia ["locus 'Daodd' in Ogaden quaerendus"]. He reports the native Somali name as "dumod".

A key to help distinguish this species from others in section

Siphonocalyx will be found under *C. mildbraedii* Thomas in the present series of notes (below).

Citations: MOUNTED ILLUSTRATIONS: W. C. Burger, *Fam. Flow. Pl. Ethiop. fig. 60 (4)*. 1967 (Ld).

CLERODENDRUM MILD BRAEDII Thomas, *Engl. Bot. Jahrb.* 68: [Gatt. Clerod.] 101. 1936.

Bibliography: B. Thomas, *Engl. Bot. Jahrb.* 68: [Gatt. Clerod.] 39, 68, 94, & 101. 1936; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 1, 47 & 90. 1942; Hill & Salisb., *Ind. Kew. Suppl.* 10: 55. 1947; H. N. & A. L. Mold., *Pl. Life* 2: 72. 1948; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 2, 113 & 182. 1949; Mold., *Résumé* 139 & 451. 1959; Mold., *Fifth Summ.* 1: 225 (1971) and 2: 869. 1971; Mold., *Phytol. Mem.* 2: 214 & 540. 1980.

A shrub; branchlets hexagonal, the lower ones sparsely hirsute, the upper ones densely so; internodes elongate; leaves irregularly ternate, petiolate, gradually decreasing in size upwards, the uppermost bract-like; petioles 1--2 cm. long, striate, hirsute; leafblades membranous, obovate-oblong, 9--12 cm. long, 5--6 cm. wide, apically acuminate, marginally entire, basally rounded or cuneate, glabrous above, pubescent on the prominent venation beneath; inflorescence cymose-paniculate, dark-hirsute, foliose; cymes axillary, ternate, crowded, the lower ones to 4 cm. long; sympodia elongate; peduncles about 1.5 cm. long; pedicels 1--3 mm. long, hirsute; bracts and bractlets small, subulate; calyx conic-tubular, almost cylindrical, about 9 mm. long, externally appressed-pubescent, 5-dentate to about 1/5 its length, the teeth deltoid, apically acute; corolla-tube about 2.4 cm. long, externally marked with sessile glands, dilated at the apex and base, the limb 5-lobed, the lobes subequal, obovate-oblong, 4--6 mm. long; stamens long-exserted, inserted about 2/3 from the base of the corolla-tube; filaments about 4.2 cm. long, subequal; anthers 1.5 mm. long; style about 2.7 cm. long; stigma bifid; ovary 1.3 mm. long, dark-fuscos, glabrous; mature fruit not known.

This poorly known species is based on *Mildbraed 7703* from between Ebolowa and Jaunde, south of Njong, by Aboremwong, in the southern Cameroon forest region, Cameroons, collected on January 11, 1914, and deposited in the Berlin herbarium, now destroyed. Thus far it is known to me only from the original collection, and nothing is known to me of it beyond what is stated in its bibliography (above).

A key to distinguish this plant from the other African species of Sect. *Siphonocalyx* is given by Thomas (1936) and is reproduced, with modifications, herewith:

1. Cymes loose, foliose.
2. Leaves decussate-opposite.
3. Stamens longer than the style during full anthesis.
4. Leafblades apically more or less irregularly crenate-serrate; petioles and lower leaf surface venation hairy; calyx more or less hairy.
5. Calyx 5--6 mm. long; corolla-tube 1.7--1.8 cm. long.
6. Leafblades at least 8 x 5 cm.; petioles 3--3.5 cm. long; corolla-tube 0.8--1.7 cm. long.

7. Calyx mostly 5 mm. long; corolla-tube about 1.7 cm. long, about 0.5 mm. wide; ovary round, about 1 mm. long.....*C. tanganyikense* var. *bequaerti*.
- 7a. Calyx mostly 6 mm. long; corolla-tube 8--10 mm. long, 1 mm. wide; ovary elongate-cylindric, about 1.8 mm. long.....*C. tanganyikense* var. *dubium*.
- 6a. Leafblades about 3.5 x 3 cm.; petioles 6--10 mm. long; corolla-tube about 1.8 cm. long.....*C. bingaense*.
- 5a. Calyx mostly 8--10 mm. long; corolla-tube about 2 cm. long.....*C. thonneri*.
- 4a. Leafblades marginally entire; petioles and leafblades glabrous or subglabrous.....*C. preussii*.
- 3a. Stamens shorter than the style.....*C. tanganyikense*.
- 2a. Leaves ternate.
8. Calyx about 10 mm. long, subglabrous; corolla-tube about 2.5 cm. long.....*C. mildbraedii*.
- 8a. Calyx 6--7 mm. long, hairy; corolla-tube about 1.4 cm. long.
9. Calyx glabrous or subglabrous; cymes dense..*C. hexangulatum*.
- 9a. Calyx hairy; cymes loose.....*C. consors*.
- 1a. Cymes loose, not foliose.
10. Corolla-tube shorter than the calyx.....*C. parvitubulatum*.
- 10a. Corolla-tube equaling or slightly longer than the calyx.
11. Leafblades always entire.
12. Inflorescence mostly cauliflorous at or near the base of the stems; larger branches mostly very conspicuously long-spiny; leaves mostly glabrous.
13. Calyx narrow-elongate, 6--8 mm. long; leafblades thinly membranous, fragile.
14. Petioles all short and completely glabrous, 5--18 mm. long; calyx glabrous.....*C. silvestre*.
- 14a. Petioles elongate, 4 cm. long or longer, pubescent, at least on the upper margin; calyx puberulous.....
C. buchholzii.
- 13a. Calyx broadly obconic; leafblades somewhat leathery, not fragile.....*C. laticymosum*.
- 12a. Inflorescence plainly axillary or terminating the branchlets.
15. Leafblades mostly leathery, glabrous; branches very conspicuously long-spiny.
16. Inflorescence congested, often subcapitate; calyx about 5 mm. long, nigrescent; veinlet reticulation mostly flat on the upper leaf-surface.....*C. botryodes*.
- 16a. Inflorescence very loose; calyx about 7 mm. long, stramineous, not nigrescent; veinlet reticulation mostly prominent on both leaf-surfaces.....*C. laticymosum*.
- 15a. Leafblades mostly submembranous; branches usually not conspicuously spiny.....*C. thonneri*.
- 11a. Leafblades mostly more or less dentate.
17. Corolla-tube always uniformly short, 8--10 mm. long.....
C. tanganyikense var. *dubium*.
- 17a. Corolla-tube mostly 14--17 mm. long when mature.

18. Calyx 7 mm. long.....*C. tanganyikense*.
 18a. Calyx 5--6 mm. long....*C. tanganyikense* var. *bequaerti*.
 18b. Calyx 2--4 mm. long....*C. tanganyikense* var. *microcalyx*.
- 10b. Corolla-tube $1\frac{1}{2}$ to 3 times as long as the calyx.
 19. Corolla-tube only $1\frac{1}{2}$ times as long as the calyx; inflorescence very dense, subcapitate; side ramifications of the cymes less than 7 mm. long.....*C. botryodes*.
 19a. Corolla-tube 2--3 times as long as the calyx; inflorescence loose, the side ramifications more than 7 mm. long.
 20. Inflorescence few-flowered, no more than 8 cm. long.....
C. nuxioides.
 20a. Inflorescence many-flowered, 15--30 cm. long.
 21. Corolla-tube at most 2.2 cm. long; calyx to 1 cm. long.
 22. Calyx with parallel sides, to 10 mm. long.
 23. Main bracts to 2.5 cm. long; inflorescence ramifications very thick, greatly lenticellate; leafblades basally cuneate; calyx appressed-hairy; spines 2--2.5 cm. long.....*C. silvestre*.
 23a. Main bracts only 2--3 mm. long; inflorescence ramifications thin, not lenticellate; leafblades basally mostly rounded; calyx glabrous; spines only about 1 cm. long.....*C. buchholzii*.
 22a. Calyx apically ampliate, 6--8 mm. long....*C. preussii*.
 21a. Corolla-tube 2.5 cm. long or longer.....*C. manni* & *C. chamaeriphes*.
- 1b. Cymes capitate.
 24. Leaves ternate; branches hexagonal.....*C. hexangulatum*.
 24a. Leaves decussate-opposite; branches terete or subterete.
 25. Inflorescence terminal on foliose stalks.
 26. Calyx about 4 mm. long; corolla-tube about 1.7 cm. long; inflorescence compact; leafblades basally cordate.....
C. fasciculatum.
 26a. Calyx about 8 mm. long; corolla-tube about 2 cm. long; inflorescence loose; leafblades basally rounded...*C. thonneri*.
 25a. Inflorescence terminal on leafless axillary or cauliflorous stalks to 20 cm. long.
 27. Corolla-tube $1\frac{1}{2}$ to 3 times as long as the calyx; calyx 5--7 mm. long, the lobes short, not spreading.
 28. Leafblades basally cuneate; branches ashy-gray.
 29. Peduncles 4--11 cm. long.....*C. wildemannianum*.
 29a. Peduncles only 5 mm. long.....*C. caulanthum*.
 28a. Leafblades basally rounded; branches brown.*C. botryodes*.
 27a. Corolla-tube 4--7 times as long as the calyx; calyx 2--4 mm. long, the lobes somewhat spreading.
 30. Corolla-tube 3--4 cm. long; leaves large, at least 10 cm. long.....*C. schweinfurthii* & *C. gossweileri*.
 30a. Corolla-tube only to 1.2 cm. long; leaves very small, at the most 1 cm. long.....*C. microphyllum*.

CLERODENDRUM MILNE-REDHEADI Mold., *Phytologia* 3: 264. 1950.

Synonymy: *Clerodendron milneredheadii* Mold. apud Boaler, *Journ. Ecol. Brit.* 54: 474. 1966. *Clerodendrum milne-redheadii* Moldenke apud F. White, *Gard. Bull. Singapore* 29: 69. 1977.

Bibliography: Mold., *Phytologia* 3: 264--265. 1950; E. J. Salisb., *Ind. Kew. Suppl.* 11: 56. 1953; Mold., *Résumé* 141, 148, & 451. 1959; F. White & Angus, *For. Fl. North. Rhodes.* 365 & 366. 1962; Mold., Boaler, *Journ. Ecol. Brit.* 54: 474. 1966; Mold., *Résumé Suppl.* 17: 8. 1968; Mold., *Fifth Summ.* 1: 229, 242, 245, & 450 (1971) and 2: 869. 1971; F. White, *Gard. Bull. Singapore* 29: 69. 1977; Mold., *Phytol. Mem.* 2: 219, 232, 235, & 540. 1980.

An erect perennial, rhizomatous herb or small, much-branched bush or shrub, 0.8--2 m. tall; stems often 3 or 4, erect, pale-green or reddish-tinged, obtusely tetragonal, often slightly sulcate above, rather densely puberulent or short-pubescent throughout, less so in age; nodes not annulate; principal internodes 1.5--9 cm. long; leaves decussate-opposite or ternate, sometimes approximate, ascending; petioles very short, 1--2 mm. long, or obsolete, puberulent; leaf-blades submembranous, rather uniformly green on both surfaces or slightly lighter beneath, oblanceolate, 5.5--16 cm. long, 1.5--4.5 cm. wide, apically acute or short-acuminate, marginally subentire or coarsely dentate with 3--6 antrorse teeth above the widest part, basally cuneate or long-attenuate, minutely and irregularly strigillose above, rather densely punctate and puberulent beneath; midrib slender, plane above, prominent beneath; secondaries filiform, 3--6 per side, plane above subprominulous beneath, ascending and slightly arcuate, not anastomosing at the margins and not entering the marginal teeth; veinlet reticulation sparse, obscure or indiscernible above, obscure beneath; inflorescence terminal, paniculate, 9--23 cm. long, to about 10 cm. wide, the lowermost pair of cymes usually in the axils of the uppermost leaves; cymes few-flowered, on slender puberulent stalks to about 4 cm. long, usually once or twice dichotomously branched with a central terminal flower in each dichotomy; bracts usually only one pair, subtending the second pair of cymes, foliaceous, sessile, to 3 cm. long and 8 mm. wide, puberulent on both surfaces; bractlets numerous, linear, 1--4 mm. long, puberulent, occasionally somewhat ampliate and purplish; flowers large, irregular; calyx cupuliform, pale-green, 4--7 mm. long, about 5 mm. wide, puberulent, the lobes red, often irregular, apically rounded; corolla irregular, green when young, the larger lip violet or purple, the other lobes mauve or greenish-mauve, 1.5--2 cm. long, subglabrous; stamens and style arching forward, entirely green when young, later basally whitish-mauve; anthers yellow or brown, turning orange-brown; stigma mauve or purple; fruiting-calyx incrassate, more or less patelliform, about 1 cm. wide, deeply 4-lobed, the lobes apically rounded, externally (dorsally) puberulent; fruit drupaceous, deeply 4-lobed.

This species is based on *E. Milne-Redhead 3526* from *Brachystegia* woodland just east of the Matonchi River in the Mwinilunga district, Zambia, collected on December 6, 1937, and deposited in the Kew herbarium. The corollas are described as having been "violet" on *Antun-*

es 338 and "blue" on *Phillips* 2249 and *Quarré* 1376.

Collectors have encountered this plant in red soil and in forest patches on sand, at 500 m. altitude, in flower in May, November, and December and in fruit in August. White (1977) lists it as characteristic of the Zambesian region. Material has been misidentified and distributed in some herbaria as *C. myricoides* (Hochst.) R. Br.

Citations: ZAIRE: *Bequet* 50 (Br, N); *Herb. Salesiens* S.572 (Br); *Pole-Evans & erens* 1865 (Af); *Quarré* 73 (Br, Br), 1376 (Af), 1556 (Br), 1960 (Br), 2629 (Br, Br, Br); *Saeger* 108 (Br, Br). ANGOLA: Huila: *Antunes* 338 (U1); E. J. Mendes 1538 (Ld, U1). ZAMBIA: E. Milne-Redhead 3526 (F--photo of type, K--type, Ld--photo of type, N--photo of type, Sg--photo of type), 3747 (K, N), 4299 (K, N). MALAWI: *Phillips* 2249 (Ba--376731).

CLERODENDRUM MINAHASSAE Teijsm. & Binn., *Natuurk. Tijdschr. Ned. Ind.* 25: 409 [as "*Clerodendron*"]. 1863; B. Thomas, *Engl. Bot. Jahrb.* 68: [Gatt. *Clerod.*] 20. 1936.

Synonymy: *Clerodendron minahassae* Teijsm. & Binn., *Natuurk. Tijdschr. Ned. Ind.* 25: 490. 1863. *Clerodendron infortunatum* Fern.-Villar in Blanco, *Fl. Filip.*, ed. 3, 4: Nov. App. 161. 1880 [not *Clerodendron infortunatum* Auct., 1963, nor Blume, 1918, nor Gaertn., 1885, nor Lam., 1947, nor Lindl., 1918, nor Lour., 1793, nor Schau., 1847, nor Walp., 1843, nor Wight, 1850, nor *Clerodendron infortunatum* Auct., 1935, nor Blume, 1907, nor Dennst., 1959, nor Gaertn., 1788, nor Lour., 1935, nor Miq., 1968, nor Vent., 1819, nor Willd., 1976, nor *Clerodendron infortunata* L., 1753]. *Siphobaea commersonii* Baill., *Hist. Pl.* 10: 106. 1888. *Siphobaea commersonii* Baill. apud Durand & Jacks., *Ind. Kew. Suppl.* 1, imp. 1, 400. 1906. *Clerodendron minahassae* Miq. ex Bremekamp, *Ann. Jard. Bot. Buitenz.* 28: 93. 1914; E. D. Merr., *Philip. Journ. Sci. Bot.* 12: 303. 1917. *Clerodendron minahassae* "(haud L.) Villar" ex H. Hallier, *Meded. Rijks Herb. Leid.* 37: 76 in syn. 1918. *Clerodendron minahassae* var. *typicum* H. J. Lam, *Verbenac. Malay. Arch.* 315. 1919. *Clerodendron calycinum* Zipp. ex H. J. Lam, *Verbenac. Malay. Arch.* 315 in syn. 1919 [not *C. calycinum* Turcz., 1863]. *Clerodendron minahassae* Buswell ex Mold., *Alph. List Inv. Names Suppl.* 1: 7 in syn. 1947. *Clerodendron minahassae* Teijsm. & Binn. ex Menninger, 1960 *Price List Flow. Trees* [3] sphalm. 1960. *Clerodendron minahassae* Teijsm. & Binn. ex Menninger, *Flow. Trees World* 282 sphalm. 1962. *Clerodendron minahassae* Teijsm. ex Malaviya, *Proc. Indian Acad. Sci. B.* 58: 352. 1963. *Clerodendron manahassae* Teijsm. ex Mold., *Fifth Summ.* 1: 463 in syn. 1971. *Siphobaea commersonii* Baill. ex Mold., *Fifth Summ.* 2: 621 in syn. 1971. *Clerodendron minahassae* Buswell ex Mold., *Phytol. Mem.* 2: 392 in syn. 1980. *Clerodendron minahassae* var. *hypocum* H. J. Lam ex H. N. & A. L. Mold. in Dassan & Fosb., *Rev. Handb. Fl. Cey.* 4: 442 in syn. 1983.

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Vasc. Filip. 211. 1886; Baill., Hist. Pl. 10: 106. 1888; Baill., Bull. Soc. Linn. Paris 1: 722 & 733. 1888; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 561. 1893; Oliv. in Speke, Journ. App., ed. 3, 644. 1893; Fritsch in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3b): 159. 1894; Koord., Ann. Jard. Bot. Buitenz., ser. 1, 14: 355--373 & [470]--471, pl. [21] & 22. 1896; Koord., Über Blütenknosp. Hydath. Trop. Pl. 1897; Koord., Meded. Lands Plant. Tuin. Buitenz. 19: 559 & 561. 1898; Schimp., Pflanzen-Geogr. 359. 1898; Koord. & Valet., Meded. Lands Plant. 42 [Bijdr. Boomsart. Java 7]: 164 & 212. 1900; E. D. Merr., Philip. For. Bur. Bull. 1: 52. 1903; E. D. Merr., Govt. Lab. Philip. Publ. 27: 68 (1905) and 35: 76. 1906; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 400. 1906; E. D. Merr., Philip Journ. Sci. 1: Suppl. 122. 1906; C. B. Robinson, Philip. Journ. Sci. Bot. 6: 220. 1911; Koord., Exkursionsfl. 3: 137. 1912; E. D. Merr., Fl. Manila, imp. 1, 401 & 402. 1912; Bremekamp, Ann. Jard. Bot. Buitenz. 28: 93--97, pl. 13. 1914; E. D. Merr., Bull. Govt. Lab. Philip. 35: 62. 1915; Backer, Tropische Natuur 5: 72, 88, 93, & 94. 1916; Heyne, Nutt. Pl. Ned. Ind., ed. 1, 4: 121 & xxiii. 1917; W. H. Br., Merr., & Yates, Philip. Journ. Sci. Bot. 12: 222 & 240. 1917; E. D. Merr., Philip. Journ. Sci. Bot. 12: 302, 303, & 383. 1917; H. Hallier, Meded. Rijks Herb. Leid. 37: 75 & 76. 1918; E. D. Merr., Sp. Blanc. 334. 1918; H. J. Lam, Verbenac. Malay. Arch. 314, 315, 317, 362, & 364. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 75, 85, 86, 108, 109, viii, & ix. 1921; Guerrero, Philip. Bur. For. Tech. Bull. 22: 230. 1921; Fedde, Justs Bot. Jahresber. 42: 848. 1923; E. D. Merr., Enum. Philip. Flow. Pl. 3: 403. 1923; H. F. MacMillan, Trop. Gard. Plant., ed. 3, 110. 1925; Heyne, Nutt. Pl. Ned. Ind., ed. 2, 1: 24 (1927) and ed. 2, 2: 1222--1223. 1927; Stapf, Ind. Lond. 2: 239 (1930) and 6: 544. 1931; Burkill, Dict. Econ. Prod. Malay Penins., imp. 1, 1: 589 & 590. 1935; H. F. MacMillan, Trop. Plant. Gard., ed. 4, 104, 105, & 514. 1935; Arthur & Cummins, Philip. Journ. Sci. 61: 479. 1936; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 20. 1936; Mold., Alph. List Comm. Vern. Names 2--4, 10, 17, 18, 28, & 29. 1939; Mold., Geogr. Distrib. Avicenn. 37. 1939; Mold., Prelim. Alph. List Inv. Names 18--21. 1940; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 400. 1941; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 572. 1941; Mold., Suppl. List Comm. Vern. Names 4 & 13. 1941; Worsdell, Ind. Lond. Suppl. 1: 238. 1941; Lam & Meeuse in Holt-huis & Lam, Blumea 5: 108--109, 121, & 286. 1942; Mold., Alph. List Inv. Names 16--19. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 62, 66, 72, & 90. 1942; Fairchild, Gard. Isls. Great East 179 & 229. 1943; H. F. MacMillan, Trop. Plant. Gard., ed. 5, imp. 1, 104, 105, & 514. 1943; H. J. Lam, Blumea 5: 768. 1945; Menninger, Stuart News p. 4, Jan. 11. 1945; Mold., Phytologia 2: 100. 1945; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 561. 1946; H. F. MacMillan, Trop. Plant. Gard., ed. 5, imp. 2, 104, 105, & 514, 1946; Mold., Alph. List Cit. 1: 5, 136, 137, 196, & 198. 1946; Cobin, Amer. Eagle Hort. Rev. 42 (14): 6. 1947; Mold., Alph. List Inv. Names Suppl. 1: 7. 1947; H. F. MacMillan, Trop. Plant. Gard., ed. 5, imp. 3, 104, 105, & 514. 1948; Neal, Gard. Hawaii, ed. 1, 644. 1948; Mold., Alph. List Cit. 2: 462 & 563 (1948), 3: 671, 707, 713, 727, 840, 848, & 891

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Illustrations: Koord., Ann. Jard. Bot. Buitenz., ser. 1, 14: pl. [21] & 22 [anat.]. 1896; H. F. MacMillan, Trop. Plant. Gard., ed. 4, 105 (1935), ed. 5, imp. 1, 105 (1943), ed. 5, imp. 2, 105 (1946), ed.

5, imp. 3, 105 (1948), ed. 5, imp. 4, 105 (1949), ed. 5, imp. 5, 105 (1952), ed. 5, imp. 6, 105 (1954), ed. 5, imp. 7, 105 (1956), and ed. 5, imp. 8, 105. 1962; Menninger, *Flow. Trees World* 282. 1962; Malaviya, *Proc. Indian Acad. Sci. B* 58 (6): [354], fig. 7 & 8 [anat.] 1963; Sharma & Mukhopadhyay, *Journ. Genet.* 58: 382, pl. 10, fig. 18 & 19 [cytol.]. 1963; Corner & Watanabe, *Illust. Guide Trop. Pl.* 755. 1967; Menninger, *Color Sky* [166]. pl. 132. 1975.

An erect, spreading, free-flowering shrub, 1--3 m. tall, or small tree, to 6 m. tall; trunk to 2 m. tall and 7.5--12 cm. in diameter; bark pale-gray; branchlets slender or stoutish, medullose, very obtusely tetragonal, glabrate, often shiny, lenticellate; nodes not annulate; principal internodes 2--7 cm. long; leaves decussate-opposite; petioles slender, 0.5--7.5 cm. long, very minutely and obscurely puberulent or subglabrate; leafblades chartaceous, dark- or bright-green, slightly lighter beneath, elliptic or oblong to ovate-oblong, 7.5--27.5 cm. long, 3--13 cm. wide, apically attenuate-acute or short-acuminate, marginally entire, basally obtuse or rounded (rarely sub-acute) to truncate or subcordate, minutely pulverulent on both surfaces, especially along the larger venation; inflorescence cymose, the cymes 1--many-flowered, aggregated into an abbreviated few- to many-flowered terminal panicle 5--12 cm. long (not including the corollas during anthesis) and 4.5--5 cm. wide; peduncles and sympodia short, minutely pulverulent-puberulent or glabrate; pedicels stout, 0.8--2.5 cm. long, minutely pulverulent or glabrate; foliaceous bracts none; bractlets and prophylla inconspicuous, linear-subulate, 1--3 mm. long, puberulent; flowers very large, with a spicy fragrance; calyx in bud filled with water, during anthesis fleshy, green or yellowish-green, tubular, 1.5--2.5 cm. long, 8--10 mm. wide, incised less than half way down, apically often red or reddish, externally glabrous or short-pubescent; corolla very long, hypocrateriform, the tube narrow-cylindric, creamy- or yellowish-white to light-yellow, 8--10.5 cm. long, glabrous, the limb to 6 cm. wide, the lobes white or streaked with pink, 2.5--4 cm. long, to 1.3 cm. wide; filaments and style white or else pink or purple and becoming whitish basally; fruiting-calyx fleshy, accrescent, maroon to red or blood-red to deep blue-black, often to 5 cm. wide, the lobes becoming widely divaricate in stellate fashion, apically sharply acute or acuminate; fruit drupaceous, blue-green to torquoise-blue or purple; chromosome number: $2n = 52$.

This species is based on *Teijsmann* 5298, 5774, & 5868 from the Minahassae District, Menado Province, Celebes. From the flower size it is obviously a member of the Section *Siphonanthus* (L.) Schau.

Collectors have found this plant growing in thickets and open thickets, woods, forests, secondary bush, and ravines, at 50--500 m. altitude, in anthesis throughout the year, and in fruit in June and from August to December. Backer (1965) asserts that in Java it blooms throughout the year, but MacMillan (1925) gives June to August as its usual period of anthesis. Backer (1965) says that it is native to the Philippines, Celebes, and the Sulu Islands and that in Java it is only cultivated as an ornamental. The Baileys (1976) regard it as native to the Malay Archipelago. Holthuis & Lam (1942) record it

from Salebaboe Island in the Talaud Islands.

Furtado refers to the species as "an escape [at Singapore], no plant of this species within a radius of 150 feet". Kaudern 499, cited below, may have come from a cultivated plant. Corner & Watanabe, in their work on tropical plants, speak of this as an "occasional" ornamental.

Fairchild comments that the Loomis collection (cited below) was raised from seed collected by himself in a garden on the slopes of Soepoetan volcano and says that the plant is "An unusually attractive shrub with flowers and fruits in great contrast of color, red calyx, torquoise blue fruits. It is grown in gardens here for its leaves which are used for greens. [The] calyx [is] nearly 2 inches across, individual petals $\frac{1}{2}$ in. wide. A very showy species." In his 1943 work he refers to it as "from Masamba" and claims that in Florida it "has become a tree, and its beautiful white flowers, four inches long, have borne fruits, and these in turn have grown into lusty little seedlings in a flower pot." Menninger, also in Florida, in 1955 offered 8--15-inch seedlings for \$2 apiece.

Brown, Merrill, & Yates (1917) list the species from Luzon's Volcano Island, where, they affirm, it is "widely scattered at low altitudes, in thickets and in ravines". Backer (1916) says "Inheemsch in de Minahassae en de Philippijnen, op Java hier en daar in tuinen aangeplant".

The typical form of this very variable species is native to the Philippine Islands and Indonesia; also known as an escape in Singapore and in cultivation in many parts of tropical Asia, the Hawaiian Islands, Florida, the West Indies, and (in greenhouses) Europe. It propagates readily from seeds or cuttings. The pollen has been described in detail by Nair & Rehman (1962) on the basis of Nat. Bot. Gard. Lucknow 44266, slide 2657. They assert that it has the ectine surface spinulate, the ends of the spinules either blunt or pointed, 3 (or 4)-zonicolpate, subprolate, 88 x 89 μ , range 86--99 x 80--90 μ , a few grains syncolpate.

The names, *Clerodendron fortunatum* Blanco and *C. blancoi* Naves are often placed in the synonymy of the typical form of *C. minahassae*, but actually belong to that of its var. *brevitubulosum* H. J. Lam, while *Volkameria grandiflora* Blanco, also sometimes placed here, is a synonym of *C. macrostegium* Schau., which see.

The young leaves of *Clerodendrum minahassae* are used as "greens" and medicinally to treat stomach-ache in parts of Indonesia; Ramos & Edano speak of the plant as "medicinal" on Jolo Island in the Philippines. The leaves are sometimes attacked by the parasitic fungi, *Meliola clerodendricola* P. Henn. and *Puccinia erebia* Syd.

Curran describes our plant as "A large shrub with unusual and very attractive fruits which when ripe open up like a flower, exposing a purple seed pod, and extend 5 narrow maroon-colored arms, thus resembling a starfish". Indeed, the large and massive calyxes during anthesis, with their enclosed hydathodes, the long corolla-tubes, and the leaf-shape, all taken together, well distinguish this species from all others with which it might be confused.

In the typical form of this species the calyx during anthesis is

1.5--2.5 cm. long and the corolla-tube is 8--10.2 cm. long; in var. *brevitubulosum* the calyx in anthesis is 2.5--3.5 cm. long and the corolla-tube is only 5--8.5 cm. long; in var. *grandicalyx* the calyx is to 11 cm. long.

Merrill (1917) asserts that *C. mabesae* Merr. is related to *C. minahassae*, but has even longer flowers, the corolla-tube being about 12 cm. long. In his 1923 work he does not recognize Lam's var. *brevitubulosum* and affirms that the species occurs from "Northern Luzon (Cagayan) to Mindanao and Basilan, in most islands and provinces. Often common in thickets and secondary forests at low and medium altitudes" in the Philippines, giving its extralimital distribution as Celebes and the Sulu Islands.

Cobin (1947) notes that "The dark green foliage of *Clerodendron Minahassae*, which measures up to ten inches in length and four inches across, serves as a pleasing background to the creamy white blooms and the attractive fruits. The plant propagates readily from seed or cuttings, is tolerant to shade and sun alike, and it is forecast that it will not be long before it rivals in popularity its well-known *Clerodendron* relatives grown in South Florida."

Koorders (1896) has studied very carefully the hydathodes in the buds and flowers of this species. He notes that "Die wasserhaltenden Kelche bei dieser Pflanze sind besonders interessant, weil dieselben nicht nur (wie bei *Parmentiera cerifera* und *Spathodea campanulata*) bei der Blütenknospe ganz mit Wasser gefüllt sind und (wie bei *Io-chroma macrocalyx*) auch bei der Blüte prall von Wasser sind, sondern auch bei der Frucht einen bis oben am Rande mit Wasser versehenen Krug darstellen. Dieser letztere Fall ist nun bis jetzt nicht bekannt gewesen.... Weil dasselbe für die Erklärung des biologischen Zweckes der *Clerodendron*-Wasserkelche vielleicht Werth haben könnte muss hier erwähnt werden, dass sowohl bei allen von mir in der Heimath gesammelten specimina, wie bei allen Blütenknospen, Blüten und Früchten der Kelch an der Aussenseiten an mehreren Stellen, zuweilen fast auf der ganzen Oberfläche, mehr oder weniger tief von Thieren, wohl von Insecten angebissen war. Nie aber fand ich so tief angebissene Kelche, dass die Innenwand zerstört war, und das Wasser herausgeflossen war. Die älteren Bisswunden hatten sich meistens geschlossen, aber infolge des Bissen waren meist mehr oder weniger starke Deformationen entstanden, welche besonders an alten Fruchtkelchen, namentlich im Buitenzorger Garten ziemlich auffallend waren. Im Letzteren erzeugt die Pflanze wie in der Heimath aber zahlreiche Samen. Obwohl Vermittlung der Befruchtung durch Thiere mir höchst wahrscheinlich scheint, kann ich in dieser Hinsicht leider keine Sicherheit gehen...." He gives very detailed anatomical and cytological descriptions of all the involved parts, chemical analysis of the enclosed water, etc.

The corollas of this plant are described as having been "white" on Ferris s.n., Grevenstuk 180, and Sumithraraachchi & Sumithraraachchi DBS.78, "creamy-white" on Curran 3459, "yellowish-white" on Topacio 20042. "light-yellow" on Pancho 1606, "white streaked with pink" on Gillis 7985, "the tube cream, lobes white" on Peterson J.585, and "tube green, limb white" on Furtado s.n.

Common and vernacular names reported for *C. minahassae* are the following: "alagão", "amamboligan", "ambulfan", "ayam-ayam", "bagalbak", "bagáuac", "bagáuak-itim", "bagáuak-na-putí", "bagava", "bakobok", "boenato", "boengan-merah", "boenga-petje", "danata", "Fairchild's clerodendrum", "Hugo's clerodendrum", "kajoe-tedoe", "kasopángil-qúbat", "ku-ku", "leilem", "leilèm in asoe", "lèilèm in asoe", "leilem-in-asoe", "lèilèm in taloen", "leilèm in taloen", "leilem-in-taloen", "lelema-in-taloen", "masaboekoe", "papait-ulongan", "soepangka asoewàn'a", "sunkol", "tabúgok", and "walana".

Malaviya (1963) found brachysclerids developed from transformed parenchyma cells of the cortex or pith in this plant. Melchior (1964) speaks of the calyx as a "Wasserkelch...mit wasserausschleidende Hydathoden".

The parasitic fungus, *Meliola clerodendricola* P. Henn., is recorded from this species by Hansford (1961) on the basis of Herb. Philip. Bur. Sci. 8688, 16764, 23914, 25346, & 26754, C. B. Robinson 2539, and Sydow 171 & 370 from the Philippines.

The genus *Siphobaea* was originally placed by Baillon (1888) in the *Gesneriaceae*, but was shifted to the *Verbenaceae* by B. L. Burtt in 1960. The type, *S. commersoni*, was not based on *Clerodendron commersonii* Spreng, as might be supposed, but was based on a plant received by Sonnerat from Commerson, collected by the latter in the Philippines, where it is said to be known as "bagava", and deposited in the Sonnerat herbarium at Paris.

It may be noted here that among the homonyms of *Clerodendron* (or *Clerodendrum*) *infortunatum* cited above those accredited to "Auct.", Blume, Miquel, Schauer, and Willdenow are synonyms of *C. viscosum* Vent., those accredited to Gaertner and to Ventenat are synonyms of *C. infortunatum* L., those credited to Dennstaedt, Lamarck, Walpers, and Wight are *C. villosum* Blume, that credited to Lam is *C. petasites* (Lour.) S. Moore, that credited to Lindley is *C. kaempferi* (Jacq.) Sieb., and that credited to Loureiro is in part *C. kaempferi* (Jacq.) Sieb. and in part *C. viscosum* Vent.

Keys to help distinguish *Clerodendrum minahassae* from other Indonesian species in the genus will be found under *C. klemmei* Elm. in the present series of notes [61: 410--415] and from other Indian and Hawaiian taxa under *C. indicum* (L.) Kuntze [61: 23--25].

Hallier (1918) cites *DeVriese & Teijsmann s.n.*, *Forsten 9 & s.n.*, *Weber s.n.*, and *Zippelius s.n.* from Celebes, *Ramos 14729* and *Robinson 11778* from Mindanao, *Curran 17443* from Negros, *Hallier 3518*, *Topacio 20042*, and *Vidal 491* from Luzon, and *McGregor 10267* and *Robinson 9057* from Polillo. Lam (1919) cites for the typical form of *C. minahassae* only *Forsten s.n.*, *Herb. Utrecht 43903*, and *Teijsmann & DeVriese s.n.* from Celebes. López-Palacios (1977) cites *Trujillo 8646* from cultivation in Venezuela.

[to be continued]